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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,456	07/21/2003	Toshiki Taguchi	Q76640	5221
23373	7590	07/06/2004	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			SHAH, MANISH S	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/622,456	<b>Applicant(s)</b> TAGUCHI ET AL.	
	<b>Examiner</b> Manish S. Shah	<b>Art Unit</b> 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/26/2004</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 5-10 & 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Takemoto (# JP 2000-178491).

Takemoto discloses an ink set for inkjet recording, comprising at least three kinds of inkjet inks, each of which includes a coloring agent dissolved or dispersed in an aqueous or oily medium and has maximum absorption spectrum in a spectral absorption region different from each other, wherein when a photographic printing is performed on a reflection-type (glossy film) ([0072]) image receiving medium using the ink set and a forced discoloration rate constant with an ozone gas of each ink is determined in each printed region of the at least three kinds of inks, the ratio of any two of the forced discoloration rate constants is from 0.5 to 2.0 ([0058]-[0076]). They also disclose that the ink set comprises at least one cyan ink, at least one magenta ink, at least one yellow ink, and at least one black ink (see Abstract; [0007]-[0013]). They also disclose that the coloring agent is a pigment and dye ([0016]-[0018]) in an amount of 0.2 to 20 wt% (see Examples). They also disclose that the ratio of any two of the forced discoloration rate constant is from 0.7 to 1.4, more preferably 0.8 to 1.25 ([0058]-[0076]). They also disclose that the ink set used in inkjet printer ([0069]-[0072]).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takemoto (# JP 2000-178491) in view of Kakutani (# US 6592212).

Takemoto discloses all the limitations of the ink set for inkjet recording except that the ink set comprises two cyan inks, two magenta inks, and two yellow inks.

Kakutani teaches that to get the high quality printed image, ink set including two cyan inks (light cyan and cyan), two magenta inks (light magenta, magenta) and two yellow inks (dark yellow, yellow) (see Abstract; figure: 8B).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink set of Takemoto by the aforementioned teaching of Kakutani in order to have a printed image with higher picture quality.

3. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takemoto (# JP 2000-178491) in view of Yamanouchi et al. (# JP 2002-121414).

Takemoto discloses all the limitations of the ink set for inkjet recording except that the at least three kinds of inkjet inks contains a compound represented by the formula 1 as shown in the attachment.

Shirota et al. teaches that to get the uniform color printed image with good penetration in to the paper, ink set including magenta ink contains compound represented by the formula 2 as shown in the attachment (see Abstract; claim: 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the magenta ink in the ink set of Takemoto by the aforementioned teaching of Yamanouchi et al. in order to have a printed image with uniform color distribution and good penetration in to the paper, which gives high quality printed image.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takemoto (# JP 2000-178491) in view of Shirota et al. (# US 5583553).

Takemoto discloses all the limitations of the ink set for inkjet recording except that the at least three kinds of inkjet inks contains a compound represented by the formula 3 as shown in the attachment.

Shirota et al. teaches that to get the uniform color printed image ink set including cyan ink contains compound represented by the formula 4 as shown in the attachment (column: 3, line: 40-65; column: 4, line: 1-35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the cyan ink in the ink set of Takemoto by the aforementioned teaching of Shirota et al. in order to have a printed image with uniform color, which gives high quality printed image.

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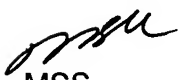
**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (571) 272-2152. The examiner can normally be reached on 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

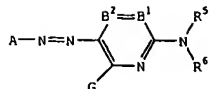
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manish S. Shah  
Examiner  
Art Unit 2853

  
MSS  
7/1/04

# Attachment

Formula 1:



wherein A represents a 5-membered heterocyclic group;

B<sup>1</sup> and B<sup>2</sup> each represents a nitrogen atom, =CR<sup>1</sup>- or -CR<sup>2</sup>=, and when either one of B<sup>1</sup> and B<sup>2</sup> represents a nitrogen atom, the other represents =CR<sup>1</sup>- or -CR<sup>2</sup>=; R<sup>5</sup> and R<sup>6</sup> each represents a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, an acyl group, an alkoxycarbonyl group, an aryloxy carbonyl group, a carbamoyl group, an alkylsulfonyl group, an arylsulfonyl group or a sulfamoyl group, and the hydrogen atom of each substituent may be substituted;

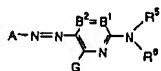
G, R<sup>1</sup> and R<sup>2</sup> each independently represents a hydrogen atom, a halogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, a carboxyl group, a carbamoyl group, an alkoxycarbonyl group, an aryloxy carbonyl group, a heterocyclic oxycarbonyl group, an acyl group, a hydroxy group, an alkoxy group, an aryloxy group, a heterocyclic oxy group, a silyloxy group, an acyloxy group, a carbamoyloxy group, an alkoxycarbonyloxy group, an aryloxy carbonyloxy group, an amino group, an acylamino group, a ureido group, a sulfamoylamino group, an alkoxycarbonylamino group, an aryloxy carbonylamino group,

an alkylsulfonylamino group, an arylsulfonylamino group, a heterocyclic sulfonylamino group, a nitro group, an alkylthio group, an arylthio group, a heterocyclic thio group, an alkylsulfonyl group, an arylsulfonyl group, a heterocyclic sulfonyl group, an alkylsulfinyl group, an arylsulfinyl group, a heterocyclic sulfinyl group, a sulfamoyl group or a sulfo group, and the hydrogen atom of each substituent may be substituted;

R<sup>1</sup> and R<sup>3</sup>, or R<sup>3</sup> and R<sup>6</sup> may combine to form a 5- or 6-membered ring.

Formula 2:

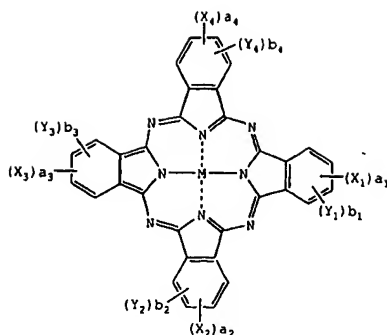
-R<sup>1</sup> (M-1)



In said general formula (M-1), A expresses the residue of 5 member heterocycle diazo component A-NH<sub>2</sub>. B<sup>1</sup> expresses =CR<sup>1</sup>-, B<sup>2</sup> expresses -CR<sup>2</sup>=, or either expresses a nitrogen atom and, as for B<sup>1</sup> and B<sup>2</sup>, another side expresses =CR<sup>1</sup>- or -CR<sup>2</sup>=, R<sup>5</sup> and R<sup>6</sup> may express a hydrogen atom, an aliphatic series radical, an aromatic series radical, a heterocycle radical, an acyl group, an alkoxy carbonyl group, an aryloxy carbonyl group, a carbamoyl group, an alkyl sulfonyl group, an aryl sulfonyl group, or a sulfamoyl group independently respectively, and each radical may have the substituent further. Respectively G, R<sup>1</sup>, and R<sup>2</sup> independently A hydrogen atom, a halogen atom, an aliphatic series radical, An aromatic series radical, a heterocycle radical, a cyano group, a carboxyl group, a carbamoyl group, An alkoxy carbonyl group, an aryloxy carbonyl group, an acyl group, A hydroxy group, an alkoxy group, an aryloxy

group, a silyloxy radical, An acyloxy radical, a carbamoyloxy radical, a heterocycle oxy-radical, alkoxy carbonyloxy group, Aryloxy carbonyloxy group, the amino group (an ANIRINO radical is included), The acylamino radical, an ureido radical, a sulfamoylamino group, an alkoxycarbonylamino radical, An aryloxy carbonylamino radical, an alkyl sulfonylamino radical, An aryl sulfonylamino radical, an aryloxy carbonylamino radical, A nitro group, an alkylthio group, an aryl thio radical, an alkyl sulfonyl group, an aryl sulfonyl group, an alkyl sulfinyl group, an aryl sulfinyl group, a sulfamoyl group, a sulfonic group, or a heterocycle thio radical is expressed, and each radical may be permuted further. R<sup>1</sup>, R<sup>5</sup>, or R<sup>5</sup> and R<sup>6</sup> may join together, and 5 members thru/or six membered-rings may be formed.

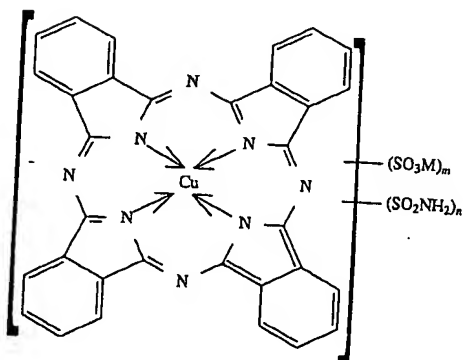
### Formula 3:



wherein  $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$  each represents  $-SO-Z$ ,  $-SO_2-Z$ ,  $-SO_2NR_1R_2$ , a sulfo group,  $-CONR_1R_2$  or  $-CO_2R_1$ ;  $Z$  represents an alkyl group, a cycloalkyl group, an alkenyl group, an aralkyl group, an aryl group or a heterocyclic group;  $R_1$  and  $R_2$  each represents a hydrogen atom, an alkyl group, a cycloalkyl group, an alkenyl group, an aralkyl group, an aryl group or a heterocyclic group; when a plural number of  $Z$ s are present, the plurality of  $Z$ s may be the same or different;  $Y_1$ ,  $Y_2$ ,  $Y_3$  and  $Y_4$  each represents a monovalent substituent; when a plural number of  $X_1$ s,  $X_2$ s,  $X_3$ s,  $X_4$ s,  $Y_1$ s,  $Y_2$ s,  $Y_3$ s or  $Y_4$ s are present, the plurality of  $X_1$ s,  $X_2$ s,  $X_3$ s,  $X_4$ s,  $Y_1$ s,  $Y_2$ s,  $Y_3$ s or  $Y_4$ s may be the same or different;  $M$  represents a hydrogen atom, a metal atom, or an oxide, hydroxide or halide thereof;  $a_1$  to  $a_4$  and  $b_1$  to  $b_4$  each

represents the number of substituent  $X_1$ ,  $X_2$ ,  $X_3$ ,  $X_4$ ,  $Y_1$ ,  $Y_2$ ,  $Y_3$  or  $Y_4$ , and  $a_1$  to  $a_4$  each represents an integer of 0 to 4 but all of  $a_1$  to  $a_4$  are not 0 at the same time;  $b_1$  to  $b_4$  each represents an integer of 0 to 4.

### Formula 4:



wherein  $M$  means an alkali metal atom, an ammonium ion or an organic amine residue,  $m$  stands for a number of from 1 to 4, and is a number of from 0 to 3.